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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/742,705	12/20/2000	Juha Salokannel	460-009952-US(PAR)	9125

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EXAMINER

HENNING, MATTHEW T

ART UNIT	PAPER NUMBER
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2131

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/742,705

Applicant(s)

SALOKANNEL, JUHA

Examiner

Matthew T. Henning

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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1 This action is in response to the communication filed on 1/29/2007.

2 **DETAILED ACTION**

3 ***Continued Examination Under 37 CFR 1.114***

4
5 A request for continued examination under 37 CFR 1.114, including the fee set forth in
6 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is
7 eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)
8 has been timely paid, the finality of the previous Office action has been withdrawn pursuant to
9 37 CFR 1.114. Applicant's submission filed on 1/12/2007 has been entered.

10
11 ***Response to Arguments***

12 Applicant's arguments filed 1/12/2007 have been fully considered but they are not
13 persuasive. Applicant argues primarily that:

14 Regarding applicant's argument that Dent failed to disclose a broadcast control channel
15 control field, the examiner does not find the argument persuasive (See Dent Col. 6 Lines 15-30).
16 The examiner first notes that a "field" is just a logical "box" around a portion of data, and as
17 such, is inherently present within the transmission of data between two points. Further, although
18 Dent did not refer specifically to a "control field", Dent disclosed the transmission of the
19 encryption seed, which is used to control the broadcast. Furthermore, Dent disclosed
20 transmission of the seed in the high data rate control channel. As such, Dent meets the limitation
21 of "a broadcast control channel". Dent further disclosed that the seed is transmitted on this

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1 channel "for a selected period of time" which meets the scope of the "control field" in the
2 "control channel". Therefore, the examiner does not find the argument persuasive.

3 All rejections and objections not presented below have been withdrawn.

4 Claims 1-21 have been examined.

5 ***Claim Rejections - 35 USC § 102***

6 The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the
7 basis for the rejections under this section made in this Office action:

8 *A person shall be entitled to a patent unless –*

9 *(b) the invention was patented or described in a printed publication in this or a foreign*
10 *country or in public use or on sale in this country, more than one year prior to the date of*
11 *application for patent in the United States.*
12

13 Claims 1-5, 8, 9-13, 16, and 18-21 are rejected under 35 U.S.C. 102(b) as being
14 anticipated by Dent (U.S. Patent 5,081,679) hereinafter referred to as Dent.

15 Claim 1 recites defining a set of keys and then selecting a key, from the set, for use in
16 encrypting information transmitted between an access point and a mobile terminal. Dent
17 disclosed creating keys in the form of a key stream (See Dent Col. 5 Lines 51-57) and using the
18 generated keys to encrypt the communications between the Base Station (BS) and the Mobile
19 Station (MS) (See Dent Col. 5 Lines 57-66). It was inherent that a key was selected from the
20 stream in order to encrypt the communications between the BS and the MS.

21 Claim 1 further recites transmitting from the access point, at intervals, data about the
22 encryption key. Dent disclosed transmission of key synchronization information from the BS to
23 the MS (See Dent Col. 6 Lines 8-12).

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1 Claim 1 further recites setting up a transmission connection between the mobile terminal
2 and the first access point. In order for there to have been communication between the BS and the
3 MS (See Dent Col. 6 Lines 5-8), it was inherent that a connection was first established between
4 the two stations.

5 Claim 1 also recites performing a handover to a second access point, involving setting up
6 the connection between the second access point and the mobile terminal and also transmitting
7 information over a broadcast control channel, about the encryption key in the second access
8 point, to the mobile terminal. Dent disclosed performing a handoff from a first BS to a second
9 BS (See Dent Col. 6 Lines 12-15) and the second BS transmitting key synchronization
10 information to the MS over a high data rate control channel (See Dent Col. 6 Lines 15-30). Dent
11 also disclosed setting up a connection between the MS and the BS (See Dent Col. 6 Lines 30-
12 39).

13 Claim 1 further recites that for the transmission of the [information about the] encryption
14 key a broadcast control channel control field is selected which is not used as a general broadcast
15 control channel control field (See Dent Col. 6 Lines 15-30 and Line 50 – Col. 7 Line 2 and Col.
16 10 Paragraph 3).

17 Regarding claim 2, Dent disclosed generating the keys as a function of a block counter
18 and a secret key (See Dent Claims 32-33). Dent further disclosed that the synchronization
19 information sent to the mobile station was the current bits of the base station block counter,
20 which correspond to the current key (See Dent Claim 34).

21 Regarding claim 3, Dent disclosed a frame counter, which was used to update the cipher
22 code (See Dent Col. 10 Lines 14-17).

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1 Regarding claim 4, Dent disclosed a speech coder frame (See Dent Col. 9 Line 20). It
2 was inherent that the speech coder frames of the second BS be sent to the mobile stations
3 connected to the second BS in order for each MS to receive its corresponding speech
4 communications.

5 Regarding claim 5, Dent disclosed creating keys in the form of a key stream in both the
6 BS and the MS (See Dent Col. 5 Lines 51-57) for use in encrypting the communications in both
7 directions between the BS and the MS. It was inherent that these keys were stored at both the BS
8 and the MS, at least temporarily until they were used, in order for the encryption algorithm to
9 have used the keys to encrypt and decrypt the communications.

10 Regarding claim 8, Dent disclosed that the first BS sent a handoff command to a second
11 BS, at which point the second BS sent key synchronization information to the MS (See Dent Col.
12 6 Lines 12-22).

13 Regarding claim 17, Dent disclosed that said encryption keys are frame specific (See
14 Dent Col. 10 Lines 14-17), and are generated at both ends of said transmission connection (See
15 Dent Figs. 2-3 Elements 115 and 115', Col. 8 Lines 54-57, Col. 10 Lines 14-17, Col. 11 Lines
16 39-41, and Col. 12 Lines 23-32).

17 Regarding claims 9-13, 16, and 18 Dent disclosed both the method and the system used
18 to reject claims 1-5, 8, and 17 (See Dent Claims). Therefore, Claims 9-13, 16, and 18-21 are
19 rejected for the reasons stated above.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Dent as applied to claim 1 and 9 respectively above, and further in view of Kojima et al. (U.S. Patent Number 5,323,446) hereinafter referred to as Kojima.

Dent disclosed handing off a MS from a first BS to a second BS (See Dent Col. 6 Lines 12-15). However, Dent failed to disclose that the MS could initiate the handoff. Dent also disclosed that during this handoff, the voice channel is seized for authentication purposes and no longer sends voice data (See Dent Col. 12 Paragraph 4).

Kojima teaches that if the mobile terminal requests the handoff to both the old and the new base station, then the handoff can ensure transparency to the data signals (See Kojima Summery of the Invention).

It would have been obvious to the ordinary person skilled in the art at the time of invention to employ the teachings of Kojima in the invention of Dent by having the mobile terminal send handoff requests to both the old and new base stations. This would have been obvious because one skilled in the art would have been motivated to preserve data integrity in the communication.

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1 It would have been obvious in the combination of Dent and Kojima that the new base
2 station sent its synchronization information to the mobile terminal at the time of handoff request.
3 This would be obvious in order for the mobile terminal to communicate securely with the new
4 base station.

5 Claims 7 and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Dent as
6 applied to claim 1 and 9 respectively above, and further in view of Gilhousen et al. (U.S. Patent
7 Number 5,101,501) hereinafter referred to as Gilhousen.

8 Dent disclosed handing off a MS from a first BS to a second BS (See Dent Col. 6 Lines
9 12-15), but Dent failed to disclose that the MS could initiate the handoff. However, Dent
10 disclosed the handoff signal originating at the old base terminal (See Dent Col. 6 Lines 12-15).

11 Gilhousen teaches that by providing the mobile unit with the ability to detect the need for
12 handoff, the mobile unit can become more aware of its possible communication paths much
13 sooner and with less effort than if the information was relayed from its base station, which
14 allows the mobile unit to find the cell site with the strongest signal and request handoff to that
15 cell (See Gilhousen Col. 8 Paragraphs 4-5).

16 It would have been obvious to the ordinary person skilled in the art at the time of
17 invention to employ the teachings of Gilhousen to the invention of Dent by having the mobile
18 unit detect the need for a handoff and then request the handoff. This would have been obvious
19 because the ordinary person skilled in the art would have been motivated to provide the mobile
20 terminal with the strongest signal available.

21 It would have been obvious in the combination of Dent and Gilhousen that the new base
22 station sent its synchronization information to the mobile terminal at the time of handoff request.

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1 This would be obvious in order for the mobile terminal to communicate securely with the new
2 base station.

3 *Conclusion*

4 Claims 1-21 have been rejected.

5 The prior art made of record and not relied upon is considered pertinent to applicant's
6 disclosure.

7 i. Rose (US Patent Number 6,252,958) teaches that updating an encryption
8 key for each frame ensures that erased or out of sequence frames do not disrupt
9 the flow of information.


10 ii. Schneier (Applied Cryptography Second Edition) disclosed that key
11 updating protects against ciphertext attacks.

12
13 Any inquiry concerning this communication or earlier communications from the
14 examiner should be directed to Matthew T. Henning whose telephone number is (571) 272-3790.
15 The examiner can normally be reached on M-F 8-4.

16 If attempts to reach the examiner by telephone are unsuccessful, the examiner's
17 supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the
18 organization where this application or proceeding is assigned is 571-273-8300.

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1 Information regarding the status of an application may be obtained from the Patent
2 Application Information Retrieval (PAIR) system. Status information for published applications
3 may be obtained from either Private PAIR or Public PAIR. Status information for unpublished
4 applications is available through Private PAIR only. For more information about the PAIR
5 system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR
6 system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would
7 like assistance from a USPTO Customer Service Representative or access to the automated
8 information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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15 Matthew Henning
16 Assistant Examiner
17 Art Unit 2131
18 4/04/2007
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